

CHARGE NO: 2506
PROJECT TITLE: Botanical Investigations
PROJECT LEADER: Roger T. Bass
PERIOD COVERED: August 1-31, 1981
DATE OF REPORT: September 8, 1981

I. General

A. Upon completion of the harvest of the ^{14}C tobacco plants from run seven, all leaves were oven cured resulting in the following dry weight yields.

<u>Plant No.</u>	<u>Dry Wt.</u>
1 (N.rustica-G)	15 gm.
2 (Ox. 1-181)	106
3 (N.rustica-B)	32
4 (S.C.58)	113

Determinations for yield, total alkaloid, and specific activity showed plant #4, the S.C.58 to be the probable best selection from the four plant candidates grown in chamber run seven. Chamber run number eight with four plants of S.C. 58 was started on 8/5/81 and is currently in progress.

B. In cooperation with Charge #1716 the hydroponic culture experiment for feeding ^{45}Ca has been set up. A total of eight plants of Coker 319 has been arranged in a special area of the Greenhouse as directed by the Radiation Safety Officer. Two of the eight plants will be controls, four of them will be fed increments of ^{45}Ca weekly, and two plants will be fed ^{45}Ca in one total dose at the beginning of the experiment. Each plant is being grown in a 5 gal. container of nutrient solution with proper aeration. These plants have been under culture for about six weeks and are showing good growth. All plants have been topped and suckered during this period. Green leaf samples are being taken periodically for use by Charge No. 1716.

C. A list of the botanical names of natural ingredient plant sources of PM products was provided as requested by Dr. Wakeham.

D. A 10 gm. sample of Cambridge filler was prepared as requested by Charge No. 2501. The Kontes Chromaflex Sprayer was used to apply a 27 μCi water solution of $^{45}\text{CaCl}_2$ to the tobacco filler. After equilibration, a total of nine 85mm hand made cigarettes were prepared for smoke studies.

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II. Cooperative Studies

A. The 1981 Georgia Variety Evaluation display was held at Moultrie on September 26 & 27. For the Farm Test the seven entries (PDII, Coker 79-176MM, McNair 926, McNair 9107, N.C. TG-22, N.C. 85, and Va. 85) plus the two control varieties N.C. 2326 and N.C. 95 from the Hinson and Holton farms were evaluated. An average of about 76% of the tobacco was found to be suitable for PM use by Leaf Department personnel. The McNair 926, N.C. TG-22, and PDII graded highest based on physical appearance characteristics. For the Regional Small Plot Test, a total of 37 entries were evaluated with the Va. 85, N.C. 86, N.C. 69, and Speight G-86M showing up best in appearance.

B. A group of ground, dried Burley tobacco breeding line samples for 1981 was received from Coker's Pedigreed Seed Co. for total alkaloid analysis.

III. Greenhouse

A. The Kool-Cel evaporative cooling system was shut down in order to drain the water reservoir tank. Once empty, the tank was scrubbed and cleaned, and then refilled with fresh water in order to minimize the accumulation of foreign matter on the pads.

B. The normal plant production and maintenance activities have been completed. Trays of Coker 319, *N. sylvestris*, *N. tomentosiformis*, Coker 411, Ky. 14, *N. longiflora*, *N. glauca*, *N. glutinosa*, T.I. 1112, S.C. 58, and Speight G-28 have been seeded. Seedlings of Smyrna, Ky. 10, *N. rustica*, Coker 411, S.C. 58, Oxford 1-181, and Coker 319 were transplanted.

C. Fresh, green and cured tobacco plant materials were provided as requested for Charge Nos. 1716, 1901, 2501, and 1504.

IV. References:

G. Newell NB 7395
A. Brna NB 7435

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